

**Monograph of the species belonging to the genus
ANTHRAX from America north of Mexico.**

BY D. W. COQUILLET,

Los Angeles, Cal.

The genus *Anthrax* Scop., is easily distinguished from the allied genera by the following characters:

Second vein issues from the third opposite or nearly opposite the small crossvein, the distance being never more than the length of that crossvein; usually two, rarely three submarginal cells, four posterior cells (five in *haleyon*); anal cell not widest at its apex; antennal style minute or wanting; pulvilli wanting.

In the "Canadian Entomologist," for 1886, page 157, I have given my reasons for uniting the genus *Dipalta* O. S. to *Anthrax*; in the present paper I retain it in the sense of a subgenus for those species which always have three submarginal cells.

In the following pages I have placed an exclamation point (!) after those localities from which I have obtained specimens of the different species, and I have placed a similar mark after those synonymies made out by myself; the other localities and synonyms are those given in Osten Sacken's excellent "Catalogue of the described Diptera of N. America."

In this place I desire to express my sincere thanks to the following persons who have aided me in the preparation of this paper: Dr. S. W. Williston, Dr. H. A. Hagen, Mr. B. Pickman Mann, Mr. E. L. Keen and others.

Anthrax curta Loew, and *A. pertusa* Loew, are unknown to me. I submitted specimens of several species to Dr. Hagen for comparison with Loew's types, and he wrote me that Loew's *diagonalis* differs from Say's *edititia*, and also from my *perplexa*. My determination of *bigradata* Loew, Dr. Hagen writes me is correct, but this species differs decidedly from *curta* Loew, and *sagata* Loew, as does also my *scitula*; *flaviceps* Loew differs from my *Willistonii*, and *pertusa* Loew, although resembling my *nugator*, is a different species.

Anthrax sinuosa Wied., is best located in the genus *Hemipenthes* Loew, as it is furnished with pulvilli.

Table of Genera.

- 1.—Wings with a crossvein between second vein and anterior branch of the third.2.
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Legs black, tomentum of abdomen black and yellowish..... 40. **dispar.**

46.—Abdomen broadly reddish on the sides, front tibiæ destitute of bristles...17.

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Base of wings brownish-yellow, wings with five or six darker spots.

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48.—Base of discal cell to small crossvein wholly brown, brown in anal cell extends beyond base of fourth posterior cell, antennæ wholly black.

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Base of discal cell to small crossvein never wholly brown, first antennal joint reddish.....49.

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Front coxæ and sides of abdomen destitute of black pile.....51.

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Pleura largely black pilose, occiput yellowish tomentose, dorsum of thorax destitute of a white tomentose vitta each side.....35. **palliata.**

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Pile of abdomen white.....37. **vigilans.**

52.—Sides of abdomen broadly reddish, second vein strongly curved 5-shaped towards its apex, front tibiæ destitute of bristles.....45. **mira.**

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Bristles of thorax and scutellum black, legs black.....27. **vana.**

54.—Pile and tomentum of abdomen white..... 37. **vigilans.**

Pile and tomentum of abdomen yellowish.....38. **fumida.**

Descriptions of Species.

1. **Anthrax (Dipalta) junctura** n. sp.—Front black, reddish below, pale yellowish tomentose and pilose; face yellowish, much produced below, pale yellowish tomentose; proboscis projects one-third its length or less beyond epistoma; first two joints of antennæ yellow, the third black or obscure reddish, short conical at its base; occiput pale yellowish tomentose. Thorax black, pale yellowish tomentose and pilose; bristles of hind angles yellowish; pleuræ pale yellowish pilose; scutellum black, the apex sometimes reddish, its tomentum, pile and bristles pale yellowish. Abdomen black, hind margin of each segment narrowly and the sides sometimes broadly reddish; tomentum and pile of abdomen wholly pale yellowish; venter black and reddish, pale yellowish tomen-

tose. Legs yellowish, pale yellowish tomentose, front tibiae destitute of bristles, tarsi toward the apex black, claws of front tarsi small. Wings pale smoky brown, with a yellowish tinge, the apex more hyaline; first submarginal cell divided by a crossvein into two cells. Length 9-10 mm.

California. Thirteen specimens in May.

2. **Anthrax (*Dipalta*) *serpentina*** O. S. (Syn. *Dipalta serpentina* O. S.)—Black, tips of femora, tibiae wholly and sometimes first joint of antennae, reddish. Front and face reddish tomentose and black pilose, epistoma considerably produced; proboscis projecting length of labellae or less beyond epistoma; third joint of antennae short conical at its base; occiput yellowish tomentose. Thorax reddish tomentose, pile of sides and front end yellowish, bristles of hind angles reddish; pleurae yellowish pilose; scutellum reddish tomentose, bristles also reddish. Abdomen reddish tomentose, that on middle of second, third and fourth segments black, most extended on the fourth segment; pile on sides of first three segments quite abundant, yellowish mixed with a few black ones, that on sides of remaining segments sparse, depressed and chiefly black; dorsum of abdomen with numerous black pile posteriorly; venter yellowish tomentose. Legs yellowish tomentose, front tibiae destitute of bristles, claws of front tarsi small. Wings hyaline, costal cell yellowish, a brown spot in base of each basal and of the anal and axillary cells, a brown crossband, narrowest posteriorly, extends from costal cell to hind margin of wing, filling bases of first submarginal, first, third and fourth posterior cells and of the discal cell, also the apex of each basal and of the axillary cell, inclosing a hyaline spot in base of marginal cell; a second brown crossband extends from costal cell to hind margin of wing, filling apices of first submarginal, first posterior and discal cells, and bases of second and third submarginal and second posterior cells; a brown spot on apex of second vein, another near apex of anterior branch of third vein, a third on apex of anterior intercalary vein, and a fourth on apex of fifth vein, but the last two spots are sometimes jointed to the second brown crossband; first submarginal cell divided by a crossvein into two cells, second vein strongly S-shaped before its tip; a stump of a vein projects into marginal cell from second vein at or near upper end of crossvein at apex of first submarginal cell. Length 9-11 mm.

Florida!, Georgia, Colorado, California, Mexico. A single specimen (Morrison).

3. **Anthrax (*Dipalta*) *Keenii*** n. sp.—Front brownish, the crown black, golden-yellow tomentose and black pilose; face obscure reddish, retreating below, golden-yellow tomentose and black pilose; proboscis projecting about one-half its length beyond epistoma; antennae black, the third joint subglobular at its base, the styliform portion linear, slender, and longer than rest of antenna; occiput golden-yellow tomentose. Thorax black, coppery tomentose, the sides and front end reddish pilose, bristles of hind angles coppery; pleura reddish pilose, a cluster of pale yellowish pile beneath root of each wing; scutellum black, its tomentum and bristles coppery. Abdomen black, reddish or coppery tomentose, the sides reddish pilose, a cluster of black pile in hind angles of segments from two to six; venter black, coppery tomentose. Legs brownish, golden-yellow tomentose and black pilose, front tibiae provided with bristles; tarsi toward the apex black, claws of front tarsi well developed. Wings blackish brown, the following parts hyaline; a conical spot in outer end of axillary and anal cells; a larger

one in discal cell just beyond small crossvein, extending across the third and fourth posterior cells, extreme apex of third posterior, apex of second and first posterior, of the third submarginal and sometimes also of the second submarginal cell; a spot in outer end of marginal cell extending into the second submarginal cell, and sometimes united with the hyaline at apex of wing; a spot in last third of first submarginal cell; a small spot in apex of second basal cell, and sometimes one in centre of second submarginal cell; a subhyaline spot in first basal and base of marginal cell; first submarginal cell divided by a crossvein into two cells. Length 10 mm.

Arizona! Four specimens (Williston, Keen).

I take great pleasure in naming this interesting species in honor of my young friend, Mr. Eugene L. Keen, of Philadelphia, Pa., who has aided me much in my studies of this difficult group.

4. **Anthrax aenea** n. sp.—Wholly black. Front whitish tomentose and black pilose; face much retreating below, white tomentose; proboscis not projecting beyond epistoma; first two joints of antennae of an equal length, third joint subglobular at its base, the styliform portion slender and linear; occiput white tomentose. Thorax bronze-colored tomentose, the sides and front end whitish pilose, the dorsum black pilose, bristles of hind angles black; pleura white pilose; scutellum bronze-colored tomentose, bristles black. Abdomen black tomentose, a white tomentose crossband on bases of second and fourth segments and a crossband of bronze-colored tomentum on bases of third, fifth and following segments, occupying nearly whole dorsum of last three segments; sometimes a similar crossband on second segment; sides of abdomen quite abundant pilose, that on sides of the first segment, basal half of second and fourth, and sides of last two segments white on sides of rest of abdomen black; last segment in the male destitute of silvery-white tomentum; venter white tomentose, a crossband of black tomentum on bases of third, fifth, sixth and seventh segments. Legs yellowish or black tomentose, front tibiae provided with bristles, claws of front tarsi minute. Wings hyaline, costal cell yellowish; antecostal cell wholly black tomentose. Length 7-8 mm.

California. Nine specimens.

5. **Anthrax nebulo** n. sp.—Same as *aenea* except: Legs yellowish; tomentum of front and face, bristles of thorax and pile of pleura, largely yellowish. Abdomen, except first segment and base of second, almost wholly bronze-colored tomentose; last segment in the male largely silvery tomentose; front tibiae destitute of bristles. Length 9 mm.

Washington Territory! A single specimen (Williston).

6. **Anthrax consessor** n. sp.—Wholly black. Front yellowish-white tomentose and black pilose; face slightly retreating below, yellowish-white tomentose; proboscis not projecting beyond epistoma; first two joints of antennae of nearly an equal length, third joint subglobular at its base, the styliform portion slender and linear; occiput white tomentose. Thorax behind golden yellow tomentose, the dorsum black pilose, sides and front end yellowish pilose, bristles of hind angles reddish; pleura yellowish pilose; scutellum on hind margin golden yellow tomentose, the bristles black. Abdomen black tomentose, a crossband of yellowish tomentum on bases of second, third and fourth segments

and one of deep, reddish-brown tomentum on bases of the fifth and sixth segments, last segment silvery-white tomentum in the male, deep reddish-brown tomentose in the female; pile of sides of first, second and fourth segments white, of the others black, on first four segments abundant, on the remaining segments sparse; venter white tomentose, a black tomentose crossband on base of each segment except the first and second, and sometimes of the third. Legs whitish tomentose, front tibiæ destitute of bristles, claws of front tarsi minute. Wings hyaline, costal cell yellowish; antecostal cell wholly black tomentose, no epaulette of silvery tomentum at base of wings in either sex. Length 7 mm.

California! Six specimens.

7. **Anthrax alternata** Say (Syn. *A. stenozona* Loew!, *A. scrobiculata* Loew!, *A. albipectus* Macq., *A. connexa* Macq., *A. consanguinea* Macq.)—Differs from *consessor* as follows: Tomentum of last three abdominal segments yellowish-white, instead of deep reddish-brown; pile of sides of last segment white, of hind angle of second segment usually black; last segment in male never wholly silvery-white tomentose; pile of pleura sometimes very dark and mixed with several black ones; front tibiæ sometimes provided with bristles, claws of front tarsi small; antecostal cell sometimes largely yellowish tomentose. Length 11-14 mm.

New York!, Maryland!, Florida!, Montana!, Nebraska!, Illinois. Fourteen specimens.

Var. **hypomelas** Macq. (*Anthrax hypomelas* Macq.)—Differs from the typical *alternata* in that the pile on sides of fourth abdominal segment is wholly black, instead of largely whitish; pile of breast, coxæ and venter, and tomentum of legs largely black. Length 14 mm.

Canada!, Pennsylvania, Wis. A single specimen (Provancher).

Var. **lateralis** Say (*Anthrax lateralis* Say; syn. *A. Bastardi* Macq.; *A. gracilis* Macq.)—Has the pile and tomentum of thorax and abdomen golden-yellow where it is whitish or pale yellowish in the typical *alternata*. Length 8-12 mm.

New Jersey!, Florida!, Canada!, Colorado, Washington Territory! Six specimens.

Var. **perimele** Wied. (*Anthrax perimele* Wiedemann, Ans. Zwei. Ins. I, 583)—Has the tomentose crossbands on third and fifth abdominal segments yellowish, those on the other segments white, while in the typical *alternata* all of these crossbands are yellowish, or else all of them are white. Length 10 mm.

California!, Brazil (Wied.). Six specimens in May. They agree throughout with Wiedemann's description of *perimele* above quoted.

Var. **fulvipes** n. var.—Differs from the typical *alternata* in having the legs reddish-yellow instead of black, and the front tibiæ are destitute of bristles. Length 10 mm.

Arizona! A single specimen (Keen).

8. **Anthrax mercedis** n. sp.—Front reddish, above black, brown and white tomentose and reddish or black pilose; face reddish, much produced below, yellowish-white tomentose; proboscis not projecting beyond epistoma; antennæ

reddish, the third joint black, elongate-conical at its base; occiput white tomentose. Thorax black, white tomentose, sides and front end yellowish-white pilose, bristles yellowish, pleura white tomentose, pile of front part yellowish-white; scutellum black, white tomentose, bristles yellowish. Abdomen black, apex partly or wholly reddish, white tomentose, that of apex of each segment except the first, yellowish; sides whitish pilose, rarely a few black ones on fifth segment and hind part of dorsum of abdomen; pile of sides depressed except on first two segments; no silvery tomentum at tip of male abdomen; venter reddish, white tomentose and pilose. Legs reddish, yellowish tomentose, front tibiae provided with bristles; tarsi black, claws of front tarsi well developed. Wings hyaline, costal cell yellowish; antecostal cell yellowish-white tomentose, the front edge with a narrow fringe of black pile. Length 11-14 mm.

California! Eleven specimens in July.

9. **Anthrax fulviana** Say.—Wholly black. Front yellowish tomentose and black pilose; face somewhat produced below, yellowish tomentose; proboscis not projecting beyond epistoma; first antennal joint about twice as long as the second, third joint short, conical at its base; occiput yellowish tomentose. Thorax mixed black and sparse yellowish tomentose, yellowish pilose, bristles of hind angles also yellowish; breast, coxae and pleura yellowish pilose; scutellum mixed black and sparse yellowish tomentose, yellowish pilose, bristles also yellowish. Abdomen black and sparse yellowish tomentose, everywhere covered with long, erect, yellowish pile; venter yellowish pilose. Legs yellowish tomentose, front tibiae provided with bristles, claws of front tarsi small. Wings hyaline, costal cell yellowish. Length 11 mm.

New Mexico!, Colorado, British America, Washington Territory! Three specimens.

Var. **nigricauda** Loew (Syn. *Anthrax nigricauda* Loew).—Differs from the typical *fulviana* only in having numerous black pile on the face, breast, coxae, venter, dorsum of last four abdominal segments and hind margin of the last segment; first basal and base of marginal cell tinged with yellowish, an indistinct yellowish cloud on veins at bases of first submarginal and first superior cells. Length 12 mm.

Canada!, Massachusetts. Two specimens.

10. **Anthrax mucorea** Loew.—Differs from *consessor* as follows: Legs usually yellowish; epistoma usually slightly produced; proboscis sometimes projects length of the labellae beyond epistoma; tomentum of thorax and scutellum usually yellowish-white, bristles of the latter yellowish; fifth and following segments of abdomen destitute of deep reddish-brown tomentum; pile of sides of abdomen long and abundant, usually pale yellowish, that in front angles of segments five and six generally black; no crossband of black tomentum at base of fourth segment of the venter; tomentum at apex of each femur in front black; antecostal cell yellowish tomentose, the front border with a fringe of yellow and black pile. Length 8-10 mm.

Nebraska!, California! (Oct.-Nov.) Twenty-four specimens.

The pile and tomentum of thorax and abdomen is sometimes golden-yellow; I took a male of this kind united in coitu with a female having the pile and tomentum of thorax and abdomen pale yellowish.

11. **Anthrax molitor** Loew.—Differs from *mucoorea* in that the last segment in the male is never silvery tomentose, pile of dorsum of abdomen more erect and abundant, antecostal cell sometimes silvery-white tomentose, black pile on its front border more abundant, epistoma considerably retreating. Length 7-17 mm.

California!, Arizona!, Colorado. Forty-seven specimens.

Var. **pretiosa** n. var.—Has the pile and tomentum of thorax and abdomen deep golden-yellow, black pile on sides of fifth and sixth abdominal segments sparse or wanting, and the legs largely or wholly black. Length 10-14 mm.

California! Thirteen specimens.

Var. **vacans** n. var.—Differs from the typical *molitor* in having numerous black pile on the breast in front, and also at the apex of the abdomen; sides of fifth and sixth abdominal segments wholly black pilose. Length 16 mm.

Washington Territory! A single female specimen (Williston).

Specimens of the European *Anthrax flava* received from Herr V. von Röder agree in nearly every respect with *A. molitor*, except that the bristles on hind margin of scutellum are black instead of yellow.

12. **Anthrax turbata** n. sp.—Differs from *mucoorea* as follows: Legs black; epistoma considerably produced; proboscis not projecting; tomentum of thorax and scutellum wholly yellowish, bristles of scutellum and pile of front part of breast black; tomentum on apex of first segment of abdomen white; pile of sides of first segment abundant, white; of the other segments and dorsum of last three segments very sparse and mostly black; last segment in the male destitute of silvery-white tomentum; venter (apparently) wholly yellowish tomentose; front edge of antecostal cell destitute of black pile. Length 6 mm.

California! Two specimens.

13. **Anthrax proboscidea** Loew.—Black, the legs and antennæ sometimes largely reddish. Front white tomentose, the upper part yellowish tomentose, black pilose; face considerably produced below, white tomentose in the middle, the sides yellowish tomentose; proboscis projects half its length beyond epistoma; first two joints of antennæ of nearly an equal length, third joint subglobular at its base, the styloform portion slender, linear and longer than the rest of the antennæ; occiput yellowish tomentose. Thorax yellowish tomentose, front end yellowish pilose, sides yellowish and black pilose, bristles of hind angles black; pleura yellowish and black pilose, breast and coxæ largely black pilose; scutellum yellowish tomentose, bristles black. Abdomen yellowish tomentose, that on last segment white; pile of sides of abdomen abundant, black; that on sides of first two segments and in front angles of the other segments white; venter yellowish tomentose. Legs yellowish and black tomentose, front tibiae provided with bristles, claws of front tarsi well developed. Wings hyaline, costal cell brownish, the following spots brown; one in middle of first basal cell; in middle of marginal cell and a larger one in outer end of this cell extending across first submarginal cell, covering vein at base of second submarginal cell; one on veins at base of each posterior cell, of first submarginal and of discal cell; one near tip of second vein and another near tip of anterior branch of third vein; extreme base of marginal and of first and second basal cells also brown. Length 6 mm.

Arizona!, Mexico. A single specimen, somewhat rubbed (Keen).

14. **Anthrax anna** n. sp.—Wholly black. Front yellowish tomentose and black or yellowish pilose; face but little produced below, yellowish tomentose; proboscis not projecting beyond epistoma; third joint of antennae subglobular at its base, the styloform portion slender and linear, first antennal joint much less robust than the second; occiput white tomentose. Thorax yellowish tomentose, a stripe of white tomentum extends from humeri to hind angles of thorax, passing above and below root of each wing; bristles on hind angles of thorax reddish, the others black; scutellum yellowish tomentose, that at the base white; bristles black. Abdomen yellowish tomentose, that on last two segments whitish, on bases of second, third and fourth segments white; sides of first two segments long white pilose, sides of other segments and dorsum of last three segments sparse black pilose; venter and breast wholly black tomentose and pilose. Legs yellowish tomentose, front tibiae destitute of bristles, claws of front tarsi well developed. Wings hyaline, costal and first basal cell yellowish, second basal cell and bases of discal and marginal cells sometimes tinged with yellowish, veins at bases of first and fourth posterior cells, and sometimes the one at base of first submarginal cell bordered with brown. Length 4-7 mm.

California! Twelve specimens.

15. **Anthrax supina** n. sp.—Differs from *anna* as follows: Tomentum of face white; second joint of antennae not noticeably more robust than the first; base of third joint short conical. Thorax mixed yellow and black tomentose, the front end, sides and pleura white pilose, bristles of thorax mostly reddish; no white tomentum at base of scutellum; tomentum of abdomen yellowish, that on second segment white, on apices of third, fourth and extreme apex of fifth segment black; tomentum of first two segments of venter and pile of front end of breast white; tomentum of legs black, claws of front tarsi small; veins at bases of first submarginal and fourth posterior cells never bordered with brown. Length 7 mm.

California! Two specimens.

16. **Anthrax inops** n. sp. (Syn. ?*A. costata* Say!)—Same as *anna*, except face largely black; occiput pale yellowish tomentose. Thorax destitute of stripes of white tomentum, bristles of hind angles black. Abdomen white tomentose, base of third segment and apices of the fifth and sixth yellowish tomentose, apices of second and third segments and bases of the fifth and sixth black tomentose; sides of the first four segments abundant whitish pilose, of the other segments sparse black pilose. Legs wholly black tomentose, front tibiae provided with bristles, claws of front tarsi small; hind legs fringed above and below with long flattened scales; base of marginal cell and second basal cell, except its front margin, brown. Length 8 mm.

California! A single male specimen (Williston).

17. **Anthrax endora** n. sp.—Black, first antennal joint and the legs reddish. Front white or yellowish tomentose and black or yellowish pilose; face slightly projecting below, yellowish tomentose, that in the middle above sometimes white; proboscis not projecting beyond epistoma; first joint of antennae about twice as long as the second, the third joint subglobular or short conical at its base; occiput white tomentose, that in the centre yellowish. Thorax yellowish tomentose, a crossband of white tomentum near its front edge extending

to hind angles of thorax, passing above root of each wing; bristles on hind angles reddish, the others sometimes black; pleura yellowish pilose, that below root of each wing white; scutellum yellowish tomentose, that at the base white; bristles black or reddish. Abdomen yellowish tomentose, paler or white on the last three segments and bases of the second and third; pile on sides of first two segments abundant, white; that on sides of other segments and dorsum of abdomen posteriorly sparse and chiefly black; venter yellowish tomentose. Legs yellowish tomentose; front tibiae destitute of bristles, claws of front tarsi minute. Wings hyaline, costal, first basal and proximal half of marginal (except sometimes a triangular hyaline spot in base of the latter) brown; a brown cloud on veins at bases of first submarginal, first, third and fourth posterior cells. Length 6 mm.

California! Twelve specimens in October.

18. **Anthrax caprea** n. sp.—Black, the legs reddish. Front above brownish, below white tomentose; face retreating below, white or yellowish tomentose; proboscis projects from one-fourth to one-half its length beyond epistoma; first joint of antennae about three times as long as the second, base of the third joint conical; oeciput white tomentose, that in middle above yellowish. Thorax mixed white and yellowish tomentose, sometimes with a white tomentose cross-band on the front edge extending to hind end of thorax above root of each wing; bristles on hind angles reddish; pleura yellowish pilose, that beneath root of each wing white; scutellum yellowish tomentose, that at the base white; bristles reddish. Abdomen yellowish tomentose, that at base of each segment white, most extended on the second segment; sides of first two segments abundant white pilose, sides and dorsum of other segments sparse black pilose; venter yellowish tomentose. Legs yellowish tomentose, front tibiae destitute of bristles, claws of front tarsi small. Wings hyaline, costal and first basal cell, and sometimes proximal half of marginal cell largely yellowish; a brown cloud on veins at bases of first submarginal, first, third and fourth posterior cells, and sometimes on those at bases of discal and second submarginal cells; usually a stump of a vein projects into first submarginal cell from vein at base of second submarginal cell. Length 8-10 mm.

California! Nineteen specimens in October.

19. **Anthrax inaurata** n. sp.—Front black, next the antennae reddish tomentose, black or yellowish pilose; face yellowish, much produced below, yellowish tomentose; proboscis projects one-half its length or less beyond the epistoma; first two joints of antennae yellowish, the third black, subglobular at its base, the styliform portion very slender and linear; oeciput yellowish tomentose, that in the middle above more reddish. Thorax black, yellowish pilose and reddish tomentose, the usual bristles reddish; pleura yellowish pilose; scutellum black, reddish tomentose, the base narrowly white tomentose, extending on hind end of thorax to root of wings; bristles reddish. Abdomen black, the sides reddish, which color is most extended posteriorly; tomentum of abdomen yellowish, that on segments 3-6 in the male in certain lights shining like burnished gold, not at all shining in the female; pile of sides of first two segments yellowish, abundant; that on sides and hind edges of last two or three segments very sparse and mostly black; venter reddish, its tomentum yellowish, but sometimes largely black. Legs yellowish, front tibiae provided with bristles; tarsi black towards

the apex, claws of front tarsi well developed. Wings hyaline, costal cell yellowish, proximal half of first basal cell brownish, a brown cloud in marginal cell above base of first submarginal cell, a brown cloud on veins at bases of first submarginal and first posterior cells, and sometimes on those at bases of second submarginal and second, third and fourth posterior cells. Length 4-8 mm.

California!, Washington Territory! Twenty-four specimens.

20. **Anthrax lauta** n. sp.—Differs from *inaurata* only as follows: Face but little produced below; occiput (except in the middle above) with tomentose; a curved crossband of white tomentum on thorax in front of the middle, reaching to root of each wing; a crossband of white tomentum at bases of second and third abdominal segments; no shining tomentum on the third and fourth segments in the male; pile of hind part of abdomen wholly yellowish. Wings have the first basal and base of marginal cell brownish. Length 6 mm.

California! A single specimen.

21. **Anthrax agrestis** n. sp.—Differs from *inaurata* only as follows: Occiput white tomentose. Thorax with a curved white tomentose crossband in front of the middle reaching to root of each wing. Abdomen with a white tomentose crossband at bases of the second and third segments; segments 4-6 shining golden tomentose in the male. Length 7-8 mm.

California! Four specimens.

22. **Anthrax camprestris** n. sp.—Differs from *inaurata* only in having no shining tomentum on the abdomen of the male, and in having a crossband of black tomentum on base of fourth segment; there is sometimes a crossband of white tomentum on bases of second and third segments. Length 4-6 mm.

California! Seven specimens.

23. **Anthrax atrata** n. sp. (Syn. ? *A. cedens* Walk.!)—Wholly black, the pile and tomentum also wholly black, except a few whitish pile on front end of thorax; a deep fovea near centre of the front; first joint of antennæ about twice as long as the second, third joint very elongate-conical at its base, the styliform portion scarcely one-half as long as the thickened basal part; face slightly produced below; proboscis projects length of its labellæ or less beyond the epistoma. Front tibiæ provided with bristles, claws of front tarsi well developed. Wings hyaline at the apex, the base brownish-black, the outline of this color extends from near apex of first vein to hind margin beyond apex of fifth vein in third posterior cell, curving outward so as to include base of second posterior cell; a hyaline spot in bases of second basal and anal cells and near apex of discal cell, besides sometimes a subhyaline spot in bases of marginal, discal and third posterior cells, centre of fourth posterior and axillary cells and apex of each of the basal cells. Length 13-16 mm.

California! Twenty-seven specimens in September.

24. **Anthrax miscella** n. sp.—Black, lower part of front, face, first two antennal joints, scutellum, except at base, sides and apex of abdomen, venter, femora and tibiæ reddish. Front and face yellowish tomentose and black pilose, a deep fovea near centre of front; face retreating below; proboscis not projecting beyond epistoma; occiput yellowish tomentose. Thorax with a bluish cast, yellowish tomentose, dorsum black pilose, sides and front end yellowish pilose,

bristles largely or wholly reddish; pleura pale yellowish pilose; scutellum yellowish tomentose, bristles black. Abdomen pale yellowish tomentose, middle of dorsum largely black tomentose; sides black pilose, first segment and bases of the second and third, pale yellowish pilose; venter on first four segments white tomentose and pilose, that on remaining segments yellowish and black. Legs yellowish and black tomentose, front tibiæ provided with bristles, claws of front tarsi minute; apex of wings hyaline, the base brown, the outline of this color extending from near apex of first vein to base of second submarginal cell, then in and out through base of second posterior cell, reaching hind margin of wing beyond tip of penultimate vein, forming large teeth at each vein it crosses, that on vein between third and fourth posterior cells nearly reaching hind margin of wing. Length 15 mm.

Washington Territory!, California! Two specimens.

25. **Anthrax curta** Leew.—“Wholly deep black, opaque. Legs concolorous. Head spherical; prothorax, first abdominal segment wholly, and the last three segments largely, white pilose; four corners of the thorax fulvous pilose; rest of body clothed with black pile and tomentum. Length of body $4\frac{2}{3}$ lines (= little over 9 mm.) of the wings, $4\frac{7}{8}$ lines.

“Deep black, opaque. Head concolorous, spherical, face not prominent; front much narrowed toward the vertex, clothed with very short black pile and black tomentum; tomentum of face black, varied with white and brownish; antennæ black, first two joints closely black pilose; proboscis not prominent; occiput snow-white tomentose, near the vertex short white pilose. Thorax clothed with short black pile and black tomentum; prothorax white pilose; humeri and posterior angles fulvous pilose; posterior margin short fulvous pilose; scutellum black tomentose and black pilose, posterior margin fulvous tomentose. First segment of abdomen wholly snow-white pilose, second, third and fourth segments black tomentose, towards the sides, and the sides themselves, closely black pilose; last three segments in centre of dorsum black tomentose, toward the sides snow-white tomentose, the margins snow-white pilose; venter blackish fuscous, first two segments snow-white tomentose, the others black tomentose. Legs wholly black, posterior tibiæ above closely setulose. Wings hyaline, basal half black; termination of black apex of auxiliary vein obliquely to the fourth posterior cell, thence parallel with the hind margin to axillary angle, where the black color emits a tooth. [Dipt. Amer., Cent. octava, p 22.] California.”

Unknown to me; the above is a translation of Loew's original description.

26. **Anthrax scitula** n. sp.—Wholly black. Front yellow and white tomentose and black pilose; face slightly produced below, yellowish tomentose; proboscis not projecting beyond epistoma; first two joints of antennæ of nearly an equal length, third joint short conical at its base; occiput white tomentose. Thorax coppery tomentose, the dorsum black pilose, sides white pilose, front end and pleura yellowish pilose; bristles of hind angles reddish; scutellum coppery tomentose, bristles black and reddish. Abdomen black tomentose, that on apex of first and base of third segment whitish, that on the fourth and following segments largely yellowish, sometimes having a coppery tinge; pile on sides of first two segments abundant, whitish; that on remaining segments sparse, mixed yellowish and black; venter yellowish tomentose. Legs yellowish tomentose,

front tibiae destitute of bristles, claws of front tarsi small. Wings hyaline at the apex, the base blackish-brown, the outline of this color extending from near tip of auxiliary vein to second vein, then basally a short distance, then transversely to fifth vein in base of third posterior cell, then curving to hind margin of wing at apex or last third of axillary cell; the brown fills base of discal cell to small crossvein. Length 4-6 mm.

California! Three specimens in April.

27. **Anthrax vana** n. sp.—Differs from *scitula* only as follows: Face black pilose; proboscis one-half length of the labellæ beyond the epistoma; first antennal joint twice as long as the second; occiput yellowish tomentose. Thorax yellowish tomentose, its sides yellowish pilose, the bristles black; breast black pilose; scutellum yellowish tomentose, the bristles black; tomentum of abdomen black, that on the first segment and bases of the second and third white, on base of the fourth and nearly all of the fifth and sixth yellowish, mixed with black; tomentum of venter black, that on first two segments white; tomentum of legs black; outline of brown of wing not well defined, extending from tip of auxiliary vein to apex of discal cell, then curving to apex of anal cell. Length 7 mm.

California! Two specimens.

28. **Anthrax celer** Wied. (Syn. ? *A. floridana* Macq.!)—Differs from *scitula* as follows: Tomentum of front and face black and golden-yellow; epistoma retreating; base of third antennal joint subglobular. Thorax velvet black and golden-yellow tomentose, its sides and the pleura golden-yellow pilose; tomentum of scutellum golden-yellow. Abdomen black and golden-yellow tomentose, sides of first segment golden-yellow pilose, of the second, third and fourth segments black; venter black and golden-yellow tomentose. Legs black tomentose; outline of brown of wings nearly straight, extending from last eighth of first vein to apex of axillary cell. Length 7 mm.

Kentucky, Georgia, Venezuela (S. A.)! A single specimen from the latter locality received from V. von Röder, Hoym, Germany.

29. **Anthrax syrtis** n. sp.—Front black, below reddish, golden yellow tomentose and black pilose. Face reddish, the middle sometimes black, very much produced below, golden-yellow tomentose; proboscis projecting one-third its length or less beyond the epistoma; first joint of antennæ and sometimes the second reddish; third joint black, elongate conical at its base; occiput white tomentose, that in the middle above yellowish. Thorax black, yellowish tomentose, a white tomentose stripe extends from humeri to hind angles of thorax, passing above root of each wing; front end of thorax yellowish pilose; bristles of hind angles reddish; pleura white pilose, that next the head yellowish; scutellum black, yellowish tomentose, that at the base white; bristles reddish. Abdomen black, yellowish tomentose, that on bases of second and third segments usually white, on apices of second, third, fourth and fifth segments black, most extended on the second segment and sometimes wanting on the fourth and fifth; sides of first two segments abundant white and yellowish pilose, a cluster of black pile on hind angles of second segment; sides of other segments mixed black and yellowish pilose, rather sparse and depressed; dorsum of abdomen with numerous black pile; venter black, yellowish tomentose. Legs yellowish, yellowish tomentose, front tibiae provided with bristles; tarsi black toward the

tips, claws of front tarsi well developed. Wings hyaline at the apex, the base brownish, the outline of this color extending from near apex of auxiliary vein transversely to second vein, then basally nearly to base of this vein, then transversely to discal cell, then basally to first fourth of this cell, then curving through bases of third and fourth posterior cells, then basally to or beyond extreme base of fourth posterior cell, then curving to hind margin at axillary incision; hyaline part of discal cell extends half way from small crossvein to base of that cell, apex of anal cell to or beyond extreme base of fourth posterior cell hyaline. Length 8-11 mm.

California! Twenty-eight specimens in April.

30. **Anthrax bigradata** Loew (Syn. ? *A. alborittata* Macq.!).—Wholly black, the legs sometimes reddish. Front and face golden-yellow tomentose and black pilose, face slightly produced below; proboscis not projecting beyond epistoma, first two joints of antennæ of nearly an equal length, the third joint subglobular at its base the styliform portion linear and quite slender; occiput golden-yellow tomentose. Thorax yellowish or coppery tomentose, the dorsum black pilose, the sides and front end yellowish pilose; bristles of hind angles black; pleura black pilose, sometimes mixed with yellowish; scutellum yellowish or coppery tomentose, bristles black. Abdomen black tomentose, that on the fourth segment white, on the fifth and following segments largely or wholly yellowish; pile of first segment white, of the other segments on the sides abundant, black: venter yellowish tomentose and black pilose. Legs yellowish tomentose, front tibiæ destitute of bristles, claws of front tarsi minute. Wings hyaline at the apex, the base blackish-brown, the outline of this color extending from near apex of auxiliary vein transversely to second vein, then basally a short distance, then transversely to fourth vein at last fourth of discal cell, then basally to beyond middle of this cell, then curving around through bases of third and fourth posterior cells, reaching hind margin at last third of axillary cell. Length 7-10 mm.

California!, Cuba. Six specimens in April.

31. **Anthrax fulvohirta** Wied. (Syn. *A. confuscies* Macq.; *A. separata* Walk.)—Black, first two joints of antennæ, sides of abdomen broadly, and the legs, reddish. Front golden-yellow tomentose and black pilose; face much produced below, golden-yellow tomentose; proboscis projecting length of labelle or less beyond epistoma; first joint of antennæ about twice as long as the second, third joint elongate-conical at its base; occiput golden-yellow tomentose. Thorax golden-yellow tomentose, sides and front end yellowish pilose, bristles of hind angles yellowish; pleura yellowish pilose, breast yellowish and black pilose; scutellum yellowish tomentose, bristles yellowish. Abdomen golden-yellow tomentose, sides of first two segments abundant yellowish pilose, sides of other segments mixed yellowish and black pilose, more sparse and depressed; venter yellowish tomentose. Legs golden-yellowish tomentose, front tibiæ destitute of bristles, claws of front tarsi small. Wings hyaline at the apex, the base dark brown, the outline of this color extending from near apex of auxiliary vein transversely to second vein, then basally a short distance, then transversely to third vein, then basally a short distance, then obliquely to apex of axillary cell, forming triangular projections on the veins it crosses. Length 8-12 mm.

New Jersey!, Virginia, Georgia!, Kansas! Five specimens.

32. **Anthrax cautor** n. sp.—Wholly black. Front yellowish-white tomentose and black pilose; face slightly produced below, black and yellowish tomentose; proboscis not projecting beyond epistoma; first two joints of antennæ of nearly an equal length, the third joint subglobular at its base, the styliform portion slender and about as long as rest of antennæ; occiput white tomentose. Thorax yellowish and white tomentose, sides and front end yellowish pilose, pile and bristles of the hind part black; pleura white-pilose, that on lower part and on the coxæ largely black; scutellum yellowish tomentose, that at base largely white, pile and bristles black. Abdomen white tomentose, more yellowish on apex of each segment, that on apex of fourth segment broadly black, on apices of second and third segments mixed with black; sides of first two segments quite densely white pilose, sides of other segments and dorsum of abdomen very sparsely black pilose; venter brownish tomentose. Legs mixed yellowish and white tomentose, front tibiæ destitute of bristles, claws of front tarsi well developed. Wings hyaline at the apex, the base blackish-brown, the outline of this color extending from near apex of first vein transversely to second vein, then basally a short distance, then curving outward over third vein, then basally to fourth vein a little beyond small crossvein; then curving basally through discal cell opposite small crossvein and through base of third posterior cell, then basally to extreme base of this cell, then nearly straight to hind margin near apex of axillary cell; middle of anal and base of axillary cells largely subhyaline; a brown cloud on veins at bases of second submarginal and second posterior cell, that on the former sometimes united with the brown in marginal cell, crossing the first submarginal cell. Length 5-7 mm.

California! Three specimens in September and October.

33. **Anthrax edititia** Say (Syn. ? *A. diagonalis* Loew!, ? *A. vestita* Walk.!).—Front black, reddish below, golden-yellow tomentose and black pilose; face reddish, very much produced below, golden-yellow tomentose; proboscis projects one-third its length or less beyond the epistoma; first joint of antennæ, and sometimes the second, reddish; third joint black, elongate-conical at its base; occiput yellowish or white tomentose. Thorax black, yellowish tomentose, the sides and front end yellowish pilose, that above root of each wing sometimes white, the usual bristles yellowish; pleura yellowish pilose, that below root of wing sometimes white; scutellum black, tomentum and bristles yellowish. Abdomen black, the apex sometimes reddish, wholly yellowish tomentose and pilose, rarely with a few black pile posteriorly; venter black, sometimes largely reddish, yellowish tomentose. Legs reddish, yellowish tomentose, front tibiæ provided with bristles; tarsi black towards the apex, claws of front tarsi well developed. Wings hyaline at the apex, the base brownish, the outline of this color extending from near apex of auxiliary vein obliquely to second vein (or transversely to this vein, then basally a short distance) then transversely to discal cell, then basally to first third or fourth of this cell, then curving through bases of third and fourth posterior cells, ending in hind margin at axillary incision, or at apex of anal cell; sometimes the brown color is very pale, even to subhyaline with brown clouds on veins at bases of first submarginal, first, third and fourth posterior cells; sometimes a brown cloud on veins at bases of second submarginal and second posterior cells. Length 9-12 mm.

Kansas!, California!, Montana! Fifty-nine specimens in Sept.

Var. **fulvicoma** n. var.—Differs from the typical *edititia* only in having the tomentum of front and face, and pile and tomentum of thorax and abdomen deep reddish, instead of yellowish.

California!, Kansas! Five specimens.

34. **Anthrax adumbrata** n. sp.—Differs from *edititia* only as follows: Epistoma but little produced; proboscis not projecting beyond epistoma; scutellum largely or wholly, sides and apex of abdomen usually, and venter wholly, reddish; front tibiæ destitute of bristles, claws of front tarsi minute. Wings grayish hyaline, costal and base of first basal cell yellowish, base of marginal and apex of first basal cell also sometimes yellowish; a brown cloud on veins at bases of first submarginal, first and fourth posterior cells. Length 9-14 mm.

California! Seven specimens.

35. **Anthrax palliata** Loew (Syn. *A. incisa* Walk.)—Differs from *edititia* in that the front and middle of the face is black, dorsum of thorax short black pilose, sides of thorax, pleura, breast and sides of abdomen posteriorly with several black pile; tomentum and pile of head, thorax and abdomen deep reddish where in *edititia* it is yellowish, tomentum of last one or two segments of abdomen whitish; brown of wings with a blackish tinge. Length 13 mm.

Illinois, Nebraska! Two specimens in September.

36. **Anthrax perplexa** n. sp.—Black, the face, apex of abdomen, venter and legs, sometimes largely reddish. Front yellowish tomentose and black pilose; face much produced below, yellowish tomentose; proboscis projects one-fourth its length or less beyond epistoma; third joint of antennæ short-conical at its base; occiput white tomentose. Thorax yellowish tomentose, the sides and front end yellowish pilose, bristles of hind angles yellowish; pleura yellowish pilose, that below root of each wing sometimes white; scutellum yellowish tomentose, bristles yellowish. Abdomen yellowish tomentose, that on hind margins of second, third and fourth segments usually black, on bases of second and third segments sometimes whitish; pile on sides of first three segments abundant, whitish; on sides of other segments sparse and depressed, yellowish; sometimes with a few black ones intermixed; venter yellowish tomentose. Legs yellowish tomentose, front tibiæ provided with bristles, claws of front tarsi well developed. Wings hyaline at the apex, the base brownish, the outline of this color quite straight and even, extending from near apex of auxiliary vein obliquely to apex of anal cell, but sometimes the apex of this cell and greater part of axillary cell is in the hyaline part; the brown color fills base of discal cell to or beyond small crossvein, and base of third posterior cell to some distance beyond base of fourth posterior cell, and sometimes to hind margin of wing. Length 5-9 mm.

California! Thirty-six specimens in July.

37. **Anthrax vigilans** n. sp.—Same as *perplexa*, except: Lower part of front, face, first two antennal joints, and the legs, always reddish; base of third antennal joint elongate-conical. A white tomentose stripe above root of each wing; pile and tomentum of abdomen almost wholly white, none black; outline of brown of wings not well defined; brown does not fill base of discal cell to small crossvein. Length 7-8 mm.

California! Four specimens.

38. **Anthrax fumida** n. sp.—Front black, reddish tomentose and black pilose; face obscure reddish, much produced below, reddish tomentose; proboscis projects one-fourth its length or less beyond epistoma; first two joints of antennæ reddish, the third black, short-conical at its base; occiput white tomentose. Thorax black, golden yellow tomentose, sides and front end yellowish pilose, bristles of hind angles yellowish; pleura yellowish pilose; scutellum black, yellowish tomentose, bristles yellowish. Abdomen black, the apex sometimes reddish, golden-yellow tomentose; pile of sides yellowish; venter black, yellowish tomentose. Legs reddish, yellowish tomentose, front tibiæ provided with bristles; tarsi black toward the apex, claws of front tarsi well developed. Wings hyaline at the apex, the base brownish, the outline of this color not well defined, the brown being gradually evanescent posteriorly, leaving an indistinct border to the veins traversing the more hyaline part, except the apices of veins two to four; brown fills anal and axillary cells to their very tips, and the discal cell to beyond small crossvein. Length 5-7 mm.

California! Nine specimens.

39. **Anthrax impiger** n. sp.—Front black, yellowish tomentose and black pilose; face reddish, in middle above black, much produced below, yellowish tomentose; proboscis projecting about length of its labella beyond epistoma; first two joints of antennæ of nearly an equal length, reddish; the third black, very elongate-conical at its base; occiput yellowish tomentose. Thorax black, yellowish tomentose and pilose, bristles of hind angles yellowish; pleura yellowish pilose; scutellum black tomentose and bristles yellowish. Abdomen black, sides broadly reddish, yellowish tomentose; sides of abdomen sparse yellowish pilose; venter reddish, yellowish tomentose and pilose. Legs yellowish, yellowish tomentose, front tibiæ destitute of bristles; tarsi toward the tips blackish, claws of front tarsi minute. Wings hyaline at the apex the base smoky yellowish, the outline of this color indistinct, extending from near apex of the auxiliary vein obliquely nearly to small crossvein, then transversely to discal cell, then curving inward through bases of third and fourth posterior cells, reaching hind margin at tip of penultimate vein; a brown cloud on veins at bases of second submarginal, first, third and fourth posterior, and the discal cell, and sometimes on that at base of second posterior cell. Length 8-10 mm.

Arizona! Two specimens (Keen).

40. **Anthrax dispar** n. sp.—Wholly black. Front yellowish tomentose and black pilose; face very much produced below, yellowish tomentose; proboscis not projecting beyond epistoma; first joint of antennæ nearly twice as long as the second, third joint elongate-conical at its base; occiput yellowish tomentose. Thorax yellowish tomentose, the sides and front end yellowish pilose, middle of dorsum black pilose, bristles of hind angles reddish; pleura yellowish and white pilose; scutellum yellowish tomentose, bristles black. Abdomen black tomentose, base of second and third, and nearly all of the fifth segment yellowish tomentose; pile of sides of first segment abundant, whitish; that on sides of remaining segments sparse, depressed, black; in front angles of second and third segments white; venter black tomentose. Legs black, tomentose, front tibiæ destitute of bristles, claws of front tarsi minute. Wings smoky hyaline, the apex purer hyaline, costal and first basal cell wholly, basal two-thirds of marginal cell and second basal cell, except small spot in apex, dark brown; a brown cloud on veins at bases of second submarginal, second and third posterior cells. Length 8 mm.

Florida! Two specimens (Morrison).

41. **Anthrax plagosa** n. sp.—Black, sides of face and legs somewhat reddish. Front and face reddish tomentose and black pilose; face slightly retreating below; proboscis projects half its length beyond epistoma; first two joints of antennae of nearly an equal length, the third joint subglobular at its base, the styliform portion slender, linear, and about as long as rest of antennae; occiput yellowish tomentose. Thorax reddish tomentose, sides and front end yellowish pilose, bristles of hind angles black; pleura above yellowish pilose, that beneath root of each wing partly white; breast largely black pilose; scutellum black, yellowish tomentose, the pile and bristles black. Abdomen black tomentose, that on first segment, bases of second, third and fourth, and all of the fifth and following segments yellowish; pile of sides of first two segments abundant, yellowish; of the other segments rather sparse, black and yellowish; venter black and yellowish pilose. Legs yellowish and black tomentose, front tibiae provided with bristles, claws of front tarsi well developed. Wings hyaline at the apex, the base blackish-brown, the outline of this color extends from near apex of auxiliary vein transversely to second vein, then basally a short distance, then transversely to discal cell, then basally nearly to small crossvein, then almost straight to apex of axillary cell, which is wholly brown; veins at bases of first submarginal, first and fourth posterior cells narrowly bordered with whitish-hyaline. Length 8-10 mm.

Arizona! Four specimens.

42. **Anthrax parvicornis** Loew.—Differs from *plagosa* only in that the first two antennal joints, apex of scutellum and of the abdomen is reddish and the apical half of the axillary cell is hyaline. Length 9 mm.

Illinois, Louisiana! Three specimens.

43. **Anthrax nugator** n. sp.—Front black, yellowish below, brownish tomentose and black pilose; face yellowish, considerably produced below, yellowish tomentose, that on hyperstoma black; proboscis projecting length of labelae or less beyond epistoma; first two joints of antennae reddish, the first twice as long as the second, third joint black, very elongate-conical at its base; occiput white tomentose, that in middle above yellowish. Thorax black, brownish tomentose, middle of dorsum black pilose, sides and front end yellowish pilose, bristles of hind angles yellowish; pleura yellowish pilose, that beneath root of each wing white; scutellum reddish, its base more or less black, yellowish tomentose, the bristles reddish. Abdomen black, the sides sometimes marked with reddish, yellowish tomentose, sometimes largely whitish, that on apices of second, third and fifth segments black, becoming less extended on each succeeding segment; last segment and middle of the preceding one whitish tomentose; pile on sides of abdomen long and abundant, yellowish; that on sides of fifth and sixth segments, and usually of the second also, largely black; several black pile on dorsum of abdomen posteriorly; venter reddish, yellowish tomentose, that on bases of last three segments black. Legs reddish, yellowish tomentose, front tibiae destitute of bristles; tarsi black, claws of front tarsi minute. Wings hyaline at apex, the base brown, the outline of this color extending from near apex of auxiliary vein transversely to second vein, then curving to third vein near base of its anterior branch, then curving to fourth vein near apex of discal cell, then basally to last third of this cell, then curving zigzag through third posterior cell to fifth vein near its apex, then curving basally to penultimate vein near its apex, following this vein basally to base of fourth posterior cell, then curving to hind margin at last third of axillary cell; extreme base of wing.

middle of costal cell, base of marginal cell and middle of first basal cell pale yellowish; a large hyaline spot on veins at bases of first submarginal, first, third and fourth posterior and of the discal cell. Length 8-16 mm.

California! Twenty-two specimens.

Var. **pallida** n. var.—Differs from the typical *nugator* only in having no black pile on sides of abdomen nor black tomentum on venter, brown of wings paler, not near reaching apex of discal cell, its outline not distinct, and costal cell wholly yellowish. Length 8-13 mm.

California!, Arizona! Nineteen specimens.

41. **Anthrax pertusa** Loew.—“Related to *Anthrax fenestrata* Fall., third joint of antenna conical, pile and tomentum of body largely white or whitish; wings hyaline, with two blackish brown crossbands a little abbreviated posteriorly, the basal one quite broad and subequal, the other much dilated anteriorly and enclosing a hyaline spot. Length of the body $4\frac{1}{2}$ lines (= 9 mm.): of the wings, $4\frac{1}{2}$ lines.

“Head black, face and anterior third of front clay yellowish; front and face white tomentose, front black pilose, anterior oral margin short black pilose; proboscis not prominent; first two joints of antennae obscure clay yellowish, black pilose, the third black and conical. Thorax black, opaque, tomentum and pile whitish, near the collar somewhat yellowish; scutellum red, the base black. Abdomen black, a large brick-red spot on each side, apex and venter clay yellowish; margins of abdomen white pilose, posterior angles of third segment and whole of segments five and six, black pilose. Legs yellowish brick-red, tarsi black. Halteres white. Wings hyaline, with two blackish-brown crossbands; the first subbasal, quite broad and of an equal width, extending from costa to the posterior angle, but not quite reaching hind margin of wing; anterior half of second crossband much dilated, enclosing a hyaline spot in which are situated the small crossvein and base of anterior branch of the third vein, posterior half of this crossband narrow, curving through the discal, third and fourth posterior cells; costal cell and base of wing tinged with subfuscous. New Mexico. [*Dipt. Amer. sept. indigena, Cent. octava, p. 18.*”]

Unknown to me; the above is a translation of Loew's original description.

45. **Anthrax mira** n. sp.—Front black, yellowish tomentose and black pilose; face reddish, but little projecting below, yellowish tomentose; proboscis not projecting beyond the epistoma; first two joints of antennae reddish, first joint about three times as long as the second, third joint black, short conical at its base; occiput yellowish tomentose. Thorax black, yellowish tomentose and pilose, pile on middle and hind part of dorsum black; bristles on hind angles of thorax reddish; pleura yellowish pilose; scutellum black, yellowish tomentose, bristles reddish or black. Abdomen reddish, a black triangular stripe extends from the base to the fifth segment, sometimes extending whole length of abdomen; tomentum of abdomen yellowish, that on apex of fourth segment broadly black, usually extending wholly across the segment in the middle of dorsum; pile on sides of first two segments abundant, white; that on sides of remaining segments sparse and yellowish, sometimes largely black; dorsum of abdomen sparse black pilose; venter reddish, base and central part sometimes black, whitish tomentose; Legs reddish, tarsi, hind tibiae and tips of other tibiae sometimes black; tomentum of legs yellowish, front tibiae destitute of bristles, claws of front tarsi minute. Wings tinged with smoky brown from base to bases of

second submarginal and second posterior cells, beyond which, and along the hind margin it is purer hyaline; costal cell wholly brown; a brown cloud on veins at bases of first and second submarginal, first, second, third and fourth posterior cells and at base of discal cell; second vein strongly S-shaped before its tip. Length 5-11 mm.

California! Twelve specimens.

46. **Anthrax tegminipennis** Say (Syn. *A. fuscipennis* Macq.!).—Front yellowish, the crown black, yellowish tomentose and black pilose; face yellow, somewhat produced below, yellow and black pilose; proboscis projects length of labellæ or less beyond epistoma; first joint of antennæ yellow, about three times as long as the second, second and third joints black, the third elongate-conical at its base; occiput yellowish tomentose. Thorax black, brownish tomentose, sides and front end yellowish pilose, bristles of hind angles yellowish; pleura, coxæ and breast yellowish pilose; scutellum reddish, its base black, yellowish tomentose and black pilose, bristles yellowish. Abdomen black, sometimes a reddish spot on sides of second segment; tomentum of abdomen yellowish, that on hind margin of each segment reddish; sides of abdomen abundant yellowish pilose, usually with several black ones on sides and dorsum posteriorly; venter black, yellowish tomentose and pilose. Legs reddish, yellowish tomentose, front tibiae destitute of bristles; tarsi blackish toward the tips, claws of front tarsi minute. Wings usually brownish, somewhat lighter at apex and along hind margin, tinged with reddish towards the base. Length 9-14 mm.

Maine!, Canada!, Montana!, Arizona!, Iowa. Ten specimens.

Var. **Sackenii** n. var.—Differs from the typical *tegminipennis* in having pile of sides of abdomen whitish instead of yellowish, and the apex and hind margin of wings broadly nearly pure hyaline, instead of brownish. Length 14-15 mm.

Arizona!, Colorado. Three specimens.

This is undoubtedly the form referred to by Osten Sacken (West. Dipt. p. 241) as having a more hyaline latter half of the wings than *tegminipennis*.

47. **Anthrax Incifer** Fabr. (Syn. *A. fumiflamma* Walk.)—Differs from *tegminipennis* in having a black tomentose crossband on hind margin of each segment of the abdomen, and the legs are largely or wholly black; black pile of abdomen usually more numerous, forming clusters on hind angles of each segment except sometimes on the first three segments; hind margin of last segment usually densely black pilose. Length 12-15 mm.

California!, Louisiana!, Texas, Ga., W. Indies. Four specimens.

48. **Anthrax alpha** O. S.—Front yellow, the crown black, junction of these two colors sometimes reddish; tomentum of front yellowish, the pile black; face yellow, much produced below, yellowish tomentose, the epistoma usually black pilose; proboscis projects one-fourth its length or less beyond epistoma; first two joints of antennæ yellowish, the first about twice as long as the second, the third joint black, about as long as the first two, elongate-conical at its base; occiput yellowish or whitish tomentose. Thorax black, yellowish tomentose and pilose, hind part of dorsum black pilose, the usual bristles yellowish; pleura yellowish pilose, that beneath root of each wing sometimes white; scutellum reddish, the base black, yellowish tomentose, the pile and bristles black and yellowish. Abdomen black, the sides sometimes partly or wholly reddish; to-

mentum of abdomen yellowish, that at apex of each segment usually reddish, on apex of segments two to six black, becoming less extended on each succeeding segment; pile on sides of abdomen abundant, yellowish mixed with black, except on first segment and anterior half of the second; pile of dorsum of abdomen sparse, mixed yellowish and black; venter reddish, sometimes partly black, yellowish tomentose and pilose. Legs reddish, yellowish tomentose, underside of hind legs sometimes black and black tomentose; front tibiæ destitute of bristles; tarsi reddish-black, claws of front tarsi minute. Wings yellowish-brown, the following parts hyaline: a small spot in apex of marginal cell; in apex of first submarginal cell nearly as long as second submarginal cell; all of second submarginal, second, third and fourth posterior cells, except border to veins, enclosing these cells; and a large spot in apex of discal cell; sometimes a subhyaline streak in middle of axillary cell; vein between discal and third posterior cells much bowed outward and emitting a stump of a vein which projects into third posterior cell. Length 11-15 mm.

California!, Wyoming. Thirty-nine specimens in Sept.-Nov.

Var. **fuliginosa** Loew (Syn. ? *A. fuliginosa* Loew).—Differs from the typical *alpha* in that the outline of the brown color of the wings is not well defined, the parts of the wing that in *alpha* are pure hyaline are here blackish-gray, and the veins between the submarginal and posterior cells are not distinctly bordered with brown. Length 10-13 mm.

California!, Texas! Six specimens in Sept.-Nov.

This is but an immature form of *alpha*.

49. **Anthrax Willistonii** n. sp. (Syn. "*Anthrax*, sp. nov., near *fuliginosa* Loew" Williston, Can. Ent. vol. xi, p. 216.)—Differs from *alpha* in that the middle part of veins between first and second submarginal cells and between discal and third posterior cell, and sometimes that between the third and fourth posterior cells are not bordered with brown, and the axillary cell, except its base and apex is wholly hyaline. Length 11-14 mm.

California!, New Mexico!, Colorado. Four specimens.

50. **Anthrax haleyon** Say.—Differs from *alpha* in having the third posterior cell divided by a crossvein into two cells of nearly an equal length (in two of my specimens this crossvein is reduced to a stump of a vein in one of the wings) and the brown of the wings has a blackish tinge. Length 13 mm.

Kansas!, Nebraska!, Colorado, British America. Six specimens.

51. **Anthrax ceyx** Loew (Syn. ? *A. demogorgon* Walk.).—Front brownish, the crown black tomentose and pilose; face reddish, much produced below, black tomentose and pilose; proboscis projects length of labelle or less beyond epistoma; first joint of antennæ reddish, about three times as long as the second, second and third joints black, the third elongate conical at its base; occiput black, reddish tomentose. Thorax black, reddish tomentose, front end reddish pilose, sides reddish and black pilose, bristles of hind angles reddish and black; pleura reddish and black pilose; scutellum reddish, the base black, reddish tomentose, bristles reddish and black. Abdomen black, the sides sometimes partly reddish, mixed black and reddish tomentose; pile of sides black, that on sides of first and second segments largely reddish, on the others mixed with a few reddish ones; venter reddish, mixed reddish and black pilose. Legs reddish, sometimes partly black, reddish tomentose, front tibiæ destitute of bristles; tarsi

black, claws of front tarsi minute. Wings brownish-black, the following parts hyaline; a spot in apex of marginal cell, a larger spot in apex of first submarginal cell nearly as long as the second submarginal cell, a spot in centre of second submarginal cell extending nearly whole length of that cell, a streak in apex of first posterior cell, one in middle of second posterior cell, a spot in base and another in apex of third posterior cell, a spot near centre of fourth posterior cell and a large spot in apex of discal cell; veins between these hyaline parts bordered with brown; a lighter streak in middle of anal and another in middle of axillary cell; costal cell reddish; apical half of first basal cell reddish-yellow; vein between discal and third posterior cell much bowed downward, and emitting a stump of a vein which projects into the third posterior cell. Length 15 mm.

North Carolina!, Virginia, Georgia, Florida? A single specimen (Keen).

Additional Species.

Since sending the above to the publishers I have received the three following species from S. W. Williston:

52. **Anthrax effrena** n. sp.—Differs from *alpha* (No. 48) only as follows: proboscis not projecting beyond epistoma. Wings wholly dark brown, except a large hyaline spot near middle of discal cell encroaching on the third posterior cell, a less distinct spot in middle of fourth posterior cell and the entire apex of second submarginal cell; basal half of third vein and basal two-thirds of sixth vein light yellow. Length 12 mm.

Arizona! A single specimen.

53. **Anthrax arizonensis** n. sp.—Differs from *scitula* (No. 26) only as follows: Proboscis projecting length of its labellæ beyond epistoma; bristles of hind angles of thorax and of scutellum black; tomentum of abdominal segments 4-6 wholly black, of the last segment white; pile of segments 3-6 wholly black; venter and legs largely black tomentose; brown of wings extends from first vein a little beyond base of second transversely to middle of fifth vein, then slightly curving around to near apex of anal cell; whole of axillary cell hyaline, basal half of anal cell and nearly all of second basal cell whitish hyaline, costal cell and extreme base of wing bright yellow. Length 9 mm.

Arizona! A single specimen.

54. **Anthrax otiosa** n. sp.—Differs from *plagosa* (No. 41) only as follows: Epistoma slightly produced; proboscis not projecting beyond epistoma; first antennal joint yellowish, the third elongate-conical at its base; occiput white tomentose; bristles of thorax reddish; breast white pilose; scutellum reddish, the base black; sides of abdomen broadly reddish, pile of first two segments white. (Abdomen too much rubbed to give color of tomentum, but it appears to have been largely white) Brown of wings strongly curved outward through base of third posterior cell; root of second vein not bordered with subhyaline; venter reddish, white pilose; tomentum of legs largely white. Length 10 mm.

Arizona! A single specimen.